

**ST. ANN'S COLLEGE OF ENGINEERING & TECHNOLOGY: CHIRALA  
DEPARTMENT OF COMPUTERSCIENCE & ENGINEERING**

**LESSON PLAN**

**SUBJECT: DATABASE MANAGEMENT SYSTEMS**

**ACADEMIC YEAR: 2019-20**

**NAME: A YUGANDHAR REDDY**

**YEAR & SEM/SECTION: III-I-A**

**NO. OF LECTURES PER WEEK: 5+1\* (TUTORIAL)**

SI No/Unit	Topic	No of Classes Required
I	<b>An Overview of Database Management, Introduction-</b> What is Database System-What is Database-Why Database- Data Independence- Relation Systems and Others- Summary, Database system architecture, Introduction- The Three Levels of Architecture-The External Level- the Conceptual Level- the Internal Level- Mapping- the Database Administrator-The Database Management Systems- Client/Server Architecture.	8
II	<b>The E/R Models, The Relational Model, Relational Calculus,</b> Introduction to Database Design, Database Design and Er Diagrams-Entities Attributes, and Entity Sets-Relationship and Relationship Sets-Conceptual Design With the Er Models, The Relational Model Integrity Constraints Over Relations- Key Constraints –Foreign Key Constraints-General Constraints, Relational Algebra and Calculus, Relational Algebra- Selection and Projection- Set Operation, Renaming – Joins- Division- More Examples of Queries, Relational Calculus, Tuple Relational Calculus- Domain Relational Calculus.	12
III	<b>Queries, Constraints, Triggers:</b> The Form of Basic SQL Query, Union, Intersect, and Except, Nested Queries, Aggregate Operators, Null Values, Complex Integrity Constraints in SQL, Triggers and Active Database.	7
IV	<b>Schema Refinement (Normalization) :</b> Purpose of Normalization or schema refinement, concept of functional dependency, normal forms based on functional dependency(1NF, 2NF and 3 NF), concept of surrogate key, Boyce-codd normal form(BCNF), Lossless join and dependency preserving decomposition, Fourth normal form(4NF).	6
V	<b>Transaction Management and Concurrency Control:</b> Transaction, properties of transactions, transaction log, and transaction management with SQL using commit rollback and save point. Concurrency control for lost updates, uncommitted data, inconsistent retrievals and the Scheduler. Concurrency control with locking methods : lock granularity, lock types, two phase locking for ensuring serializability, deadlocks, Concurrency control with time stamp ordering : Wait/Die and Wound/Wait Schemes, Database Recovery management : Transaction	12

	recovery.	
VI	Overview of Storages and Indexing, Data on External Storage-File Organization and Indexing – Clustered Indexing – Primary and Secondary Indexes, Index Data Structures, Hash-Based Indexing – Tree-Based Indexing, Comparison of File Organization	7
<b>Total Classes Required</b>		52

**Signature of the Faculty**

**Signature of the HOD**